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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,723	02/02/2006	Tatsuya Igarashi	1982-0258PUS1	9724
2292 7590 03/06/2008 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER HOLLWEG, THOMAS A				
ART UNIT 2879		PAPER NUMBER		
NOTIFICATION DATE 03/06/2008		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

### Office Action Summary

**Application No.**

10/566,723

**Applicant(s)**

IGARASHI ET AL.

**Examiner**

Thomas A. Hollweg

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 May 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-15 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 02 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 2/2/2006, 5/2/2006  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Inventor's Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statements (IDS) submitted on February 2, 2006 and May 2, 2006, are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### *Double Patenting*

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thornton*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

3. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

4. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-7 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 15-20 of copending

Application No. 11/269,809 (Igarashi, U.S. 2006/0099451 A1). Although the conflicting

claims are not identical, they are not patentably distinct from each other because of the following.

6. With regard to claim 1, '809, claim 16, contains all of the limitations of claim 1.
7. With regard to claim 2, '809, claim 16, claims all of the limitations of claim 2, except '809, claim 16, does not expressly claim that an internal quantum efficiency of the organic electroluminescent device is 30% or more. However, '809, claim 17, claims this limitation. It would have been obvious for a person having ordinary skill in the art to construct the device according to '809, claim 16, where an internal quantum efficiency of the organic electroluminescent device is 30% or more, as claimed in '809, claim 17, because constructing the device with a high internal quantum efficiency would, in turn, raise the external quantum efficiency.
8. With regard to claim 3, '809, claim 16, contains all of the limitations of claim 3.
9. With regard to claim 4, '809, claim 16, claims all of the limitations of claim 4, except '809, claim 16, does not expressly claim that a maximum light-emitting wavelength from the compound emitting fluorescence is 580 nm or less. However, '809, claim 18, claims this limitation. It would have been obvious for a person having ordinary skill in the art to construct the device according to '809, claim 16, where a maximum light-emitting wavelength from the compound emitting fluorescence is 580 nm or less, as claimed in '809, claim 18, because having a maximum light-emitting wavelength in this region provides emission ideal for generating white light.
10. With regard to claim 5, '809, claim 16, claims all of the limitations of claim 5, except '809, claim 16, does not expressly claim that a light-emitting layer contains at

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least one host material, and the host material is a complex. However, '809, claim 19, claims this limitation. It would have been obvious for a person having ordinary skill in the art to construct the device according to '809, claim 16, where a light-emitting layer contains at least one host material, and the host material is a complex, as claimed in '809, claim 19, because having a host material that is a complex is preferable for both durability and efficiency.

11. With regard to claim 6, '809, claim 16, claims all of the limitations of claim 6, except '809, claim 16, does not expressly claim that the compound emitting fluorescence is a fused aromatic compound. However, '809, claim 15, claims this limitation. It would have been obvious for a person having ordinary skill in the art to construct the device according to '809, claim 16, where the compound emitting fluorescence is a fused aromatic compound, as claimed in '809, claim 15, because this type of fluorescence emitting compound is preferable for both its durability and efficiency.

12. With regard to claim 7, '809, claim 16, claims all of the limitations of claim 7, except '809, claim 16, does not expressly claim that the device has an electron-transporting layer, and the electron-transporting layer contains a non-complex compound. However, '809, claim 20, claims this limitation. It would have been obvious for a person having ordinary skill in the art to construct the device according to '809, claim 16, having an electron-transporting layer, and the electron-transporting layer contains a non-complex compound, as claimed in '809, claim 20, because this type of electron-transporting layer increases the efficiency of the device.

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13. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1-4 and 6-14 are rejected under 35 U.S.C. 102(b) as being anticipated by A U.S. Patent Application Publication No. 2002/0146589 A1.

16. With regard to claim 1, in figure 1, Akiyama discloses an organic electroluminescent device having at least one organic layer (3, 4, 5) containing a light-emitting layer (4) between a pair of electrodes (2, 6), wherein the organic electroluminescent device contains a compound [0039] emitting fluorescence at a time that voltage is applied, and a light emission at the time that voltage is applied is mainly derived from a light emission from the fluorescent compound [0043], and an external quantum efficiency of the device is 6% or more (inherent to the disclosed device [0118] Table 1).

17. With regard to claim 2, in figure 1, Akiyama discloses that an internal quantum efficiency of the organic electroluminescent device is 30% or more (inherent to the disclosed device [0118] Table 1).

18. With regard to claim 3, in figure 1, Akiyama discloses that the organic electroluminescent device contains an amplifying agent [0032-0038] performing a

function of amplifying a number of singlet excitons generated at the time that voltage is applied, thus amplifying an intensity of the light emission ([0118] Table 1).

19. With regard to claim 4, in figure 1, Akiyama discloses that a maximum light-emitting wavelength from the compound emitting fluorescence is 580 nm or less (inherent to the disclosed compound emitting fluorescence, merocyanine 540 [0039]).

20. With regard to claim 6, in figure 1, Akiyama discloses that the compound emitting fluorescence is a fused aromatic compound [0039, 0085].

21. With regard to claim 7, in figure 1, Akiyama discloses that the organic electroluminescent device has an electron-transporting layer (5), and the electron-transporting layer (5) contains a non-complex compound [0051].

22. With regard to claim 8, in figure 1, Akiyama discloses that the amplifying agent is a transition metal complex [0032-0038, 0100].

23. With regard to claim 9, in figure 1, Akiyama discloses that a concentration of the amplifying agent contained in the light-emitting layer is 9 weight % or less (Table 1 showing compound ratios).

24. With regard to claim 10, in figure 1, Akiyama discloses that a difference between the maximum light-emitting wavelength of the compound emitting fluorescence ([0039] merocyanine 540) at the time that voltage is applied, and a maximum light-emitting wavelength of the amplifying agent [0082], is 70 nm or less.

25. With regard to claim 11, in figure 1, Akiyama discloses that a difference between the maximum light-emitting wavelength of the amplifying agent [0081], and an

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absorption maximum wavelength of the compound emitting fluorescence ([0039] merocyanine 540) at the time that voltage is applied, is -20 nm or more.

26. With regard to claim 12, in figure 1, Akiyama discloses that the organic electroluminescent device has a hole-transporting layer (3), the light-emitting layer (4) and the electron-transporting layer (5), and a light emission from the compound emitting fluorescence is 80% or more of a total light emission obtained from the organic electroluminescent device [0009, 0016, 0041-0043].

27. With regard to claim 13, in figure 1, Akiyama discloses that the organic electroluminescent device has the hole-transporting layer (3), the light-emitting layer (4) and the electron-transporting layer (5), and has neither a hole blocking layer nor an exciton blocking layer between the light-emitting layer (4) and the electron-transporting layer (5).

28. With regard to claim 14, in figure 1, Akiyama discloses that the organic electroluminescent device has the hole-transporting layer (3), the light-emitting layer (4) and the electron-transporting layer (5), and the light-emitting layer (4) has at least one alternately laminated structure including a layer containing at least one compound emitting fluorescence at a time that voltage is applied and a layer containing at least one amplifying agent [0040].

### ***Claim Rejections - 35 USC § 103***

29. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the



invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

30. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama as applied to claim 1 above, in view of Thompson et al., U.S. Patent No. .

31. In figure 1, Akiyama discloses all of the limitations of claim 5, including that a light-emitting layer contains at least one host material; however, Akiyama does not expressly disclose that the host material is a complex.

32. Thompson teaches an electroluminescent device with a light-emitting layer having at least one host material, and the host material is a complex (col. 3, lines 10-35). At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Akiyama device where the host material is a complex, as taught by Thompson. Using a host material that is a complex would allow for a high level of energy transfer between the host and luminescent material, as taught by Thompson (col. 2, lines 45-56; col. 3, lines 10-23).

33. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama as applied to claims 3 and 14 above, in view of Forrest et al., U.S. Patent No. 6,310,360 B1.

34. In figure 1, Akiyama discloses all of the limitations of claim 14, including that the light-emitting layer maybe formed in separate layers, where one layer contains a compound emitting fluorescence and another layer containing an amplifying agent. However, Akiyama does not expressly disclose that the light-emitting layer has an alternately laminated structure of ten or more layers.

35. Forrest teaches an electroluminescent device with a light-emitting layer having multiple layers, one layer containing a compound emitting fluorescence and another layer containing an amplifying agent, that are arranged in an alternately laminated structure of ten or more layers (col. 13, lines 22-26).

36. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Akiyama device where the light-emitting layer is arranged in an alternately laminated structure of ten or more layers, as taught by Forrest, because this arrangement encourages more intersystem crossing, leading to more efficient fluorescent emission.

### ***Conclusion***

37. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Hollweg whose telephone number is (571) 270-1739. The examiner can normally be reached on Monday through Friday 7:30am-5:00pm E.S.T..

38. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

39. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TH/

/Nimeshkumar Patel/

Supervisory Patent Examiner, Art Unit 2879